

WHAT IS CLAIMED IS:

1. A method of reducing the bandwidth required to transmit a packet via a communication medium, the method including the steps of:
  - generating a full packet to be transmitted via the communication medium;
  - suppressing said full packet according to a descriptor table to create a suppressed packet, wherein said suppressed packet includes a descriptor and wherein said suppressed packet requires less bandwidth than said full packet;
  - transmitting said suppressed packet via the communication medium; and
  - expanding said suppressed packet to said full packet according to said descriptor table and said descriptor.
2. The method of claim 1, wherein said communication medium is a cable network.
3. The method of claim 1, wherein said communication medium is a wireless network.
4. The method of claim 1, wherein said communication medium is the Internet.
5. The method of claim 1, wherein said communication medium is a satellite network.
6. The method of claim 1, wherein said communication medium is an optical network.
7. The method of claim 1, wherein said full packet type is one of: a bandwidth request, a bandwidth grant, a transmission control protocol/Internet protocol acknowledgment message, a default message, a contention burst, a

reserved burst, an immediate feedback message and a resolution algorithm message.

8. The method of claim 1, wherein the step of transmitting said suppressed packet further includes allocating bandwidth for said suppressed packet.

9. The method of claim 1, wherein said descriptor table includes a parser specification sub-table, an expansion sub-table and a mask specification sub-table.

10. The method of claim 1, wherein the step of suppressing a full packet further includes suppressing the entire header of the packet.

11. The method of claim 1, wherein the step of suppressing a full packet further includes suppressing a part of the entire header of the packet.

12. A system for reducing the bandwidth required to transmit a packet via a communication medium, the system comprising:

a descriptor table;

a sender, wherein said sender generates a full packet to be transmitted via the communication medium, wherein said sender suppresses said full packet according to said descriptor table to create a suppressed packet, wherein said suppressed packet includes a descriptor, wherein said suppressed packet requires less bandwidth than said full packet, and wherein said sender transmits said suppressed packet via the communication medium; and

a receiver that receives said suppressed packet from said sender via the communication medium, wherein said receiver expands said suppressed packet to said full packet according to said descriptor table and said descriptor,

wherein said descriptor table is initially set-up when the communication medium is configured, wherein a copy of said descriptor table is stored in said

sender and said receiver, and where said sender copy and said receiver copy of said descriptor table maintain synchronization.

13. The system of claim 12, wherein said communication medium is a cable network.

14. The system of claim 12, wherein said communication medium is a wireless network.

15. The system of claim 12, wherein said communication medium is the Internet.

16. The system of claim 12, wherein said communication medium is a satellite network.

17. The system of claim 12, wherein said communication medium is an optical network.

18. The system of claim 12, wherein said full packet type is one of: a bandwidth request, a bandwidth grant, a transmission control protocol/Internet protocol acknowledgment message, a default message, a contention burst, a reserved burst, an immediate feedback message and a resolution algorithm message.

19. The system of claim 12, wherein said descriptor table includes a parser specification sub-table, an expansion sub-table and a mask specification sub-table.

20. The system of claim 12, wherein said sender is a cable modem and said receiver is a CMTS.

21. The system of claim 12, wherein said sender is a CMTS and said receiver is a cable modem.

22. The system of claim 12, wherein said sender suppresses the entire header of the packet.

23. The system of claim 12, wherein said sender suppresses a part of the entire header of the packet.

24. A descriptor table for reducing the bandwidth required to transmit a packet via a communication medium, the table comprising:  
a parser specification sub-table that contains the specification of a suppressed packet header to reconstruct and how to interpret said suppressed packet header, wherein said parser specification sub-table includes a reference template, wherein different said reference templates allow for the transmission of different packet types whereby supporting different protocols in the communication medium.

25. The descriptor table of claim 24, wherein said communication medium is a cable network.

26. The descriptor table of claim 24, wherein said communication medium is a wireless network.

27. The descriptor table of claim 24, wherein said communication medium is the Internet.

28. The descriptor table of claim 24, wherein said communication medium is a satellite network.

29. The descriptor table of claim 24, wherein said communication medium is an optical network.

30. The descriptor table of claim 24, wherein the table is further comprised of:

an expansion sub-table that contains the values of suppressed fields in said suppressed packet header so that a full packet header can be reconstructed from said suppressed packet header; and

a mask specification sub-table that contains a byte mask to reconstruct said suppressed packet header to said full packet header.